

REMARKS

The Office Action dated August 22, 2005 has been carefully considered. Claims 1 and 2 have been amended. Claims 1-7 are in this application.

Claims 2-7 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 2 has been amended to depend from the "stopping of the operation step", defined in claim 1. Applicants submit that the present claims meet the guidelines set forth in 35 U.S.C. § 112.

Claims 1-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-114706 to Miller et al.

Miller et al. relates to a method for controlling the gas concentration under reliance of the value of the analyzer. Miller et al. discloses a control system with a first control system for controlling a gas flow (concretely controlling total flow at an inlet of the reactor directly or indirectly) and a second control system for controlling a feeding gas composition to the reactor or an outlet gas composition from the reactor (see ¶ [0005]). In the second controlling system, there is described that concentration of the hydrocarbon each fed gases to the reaction system are measured by IR or mass quantity analyzer (¶ [0014]).

In the present invention, the operation of an apparatus for the reaction of gas phase oxidation is stopped, when the value of the concentration of a gas obtained by calculation based on the flow rate of the gas at the inlet port of the relevant reactor and the value measured by analysis with a gas analyzing instrument both deviate from the relevant present ranges. (See page 5, line 16 through page 8, line 26).

In contrast to the invention defined by the present claims, Miller et al do not teach or suggest a method for managing the operation of an apparatus for the reaction of gas phase oxidation while the apparatus is in trouble, comprising the step of stopping the operation of the apparatus exclusively when the value of the concentration of a gas obtained by calculation based on the flow rate of the gas at the inlet port of the relevant reactor and the value measured by analysis with a gas analyzing instrument both deviate from the relevant preset ranges. Rather, Miller et al. relates to a method for automatic control of the general vapor phase oxidation. Therefore, Miller et al. do not teach or suggest to detect the gas concentration by calculating the

gas flows. Accordingly, Miller et al. do not suggest the method for controlling the operation (for example, stopping operation emergency) by (1) the concentration obtained by calculating the gas concentration based on the gas flows, (2) the analyzed value by gas analyzed, and (3) evaluation comparing two factors. Further, Miller et al. disclose a method for controlling flow rate by measuring gas concentration, but do not teach or suggest to control by calculation of gas concentration. Moreover, Miller et al. do not disclose or suggest the calculation of the gas concentration based on the gas flow.

Miller et al. do not teach or suggest the following problems which are solved by the present invention. Since such oxidizable raw materials as propylene, isobutylenes, and ethylene are generally formed an explosive mixture by being mixed with molecular oxygen, the flow rate of such a raw material and the flow rate of a molecular oxygen-containing gas are so set that the composition of the raw material gas may normally avoid entering the inflammable area (page 1, lines 19-25). Generally, the online analyzing instruments are not directly disposed in the process piping and the samples are more often than not supplied via sampling conduits to the online analyzing instruments. In the apparatus for the production of such an easily polymerizing substance as acrylic acid, the substance forms a polymer in the piping of this sort and eventually blocks this piping and constitutes a cause for erroneous operation of the analyzing instruments. Further, the analyzing instruments have increased precision as compared with other instruments such as flow meters and some of which incorporate mechanically operation parts. Thus, they have higher possibility of inducing an erroneous operation (page 8, line 32 through page 9, line 12.) Accordingly, it is unsafe to control a vapor phase oxidation plant based on only the analyzer.

In view of the foregoing, Applicants submit that all pending claims are in condition for allowance and request that all claims be allowed. The Examiner is invited to contact the undersigned should he believe that this would expedite prosecution of this application. It is believed that no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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